

REMARKS

Currently, claims 32, 33, 35-56, and 58-73 remain pending in the present application including independent claims 32, 43, 51, and 60. Claims 60-73 are indicated as being allowable. The remaining claims stand rejected under 35 U.S.C. § 103 in view of a single prior art reference, namely U.S. Patent No. 5,367,606 to Moslehi. As stated in previous responses, however, various features and aspects of the presently claimed invention remain absent from Moslehi.

For instance, independent claim 32 calls for a plurality of light energy sources in combination with at least one tuning device that is positioned amongst the light energy sources. The tuning device is configured to emit focused amounts of light energy. Claim 32 requires the tuning device to comprise a light energy source spaced from a focusing lens that is configured to focus and direct light energy onto a semiconductor wafer at a particular location for more uniformly heating the wafer.

In comparison, Moslehi fails to disclose or suggest the use of a tuning device positioned amongst a plurality of light energy sources and fails to disclose or suggest a tuning device that comprises a light energy source spaced from a focusing lens as defined in claim 32. Instead, Moslehi merely discloses a multi-zone illuminator for use in semiconductor processing chambers that comprises a plurality of individual source lamps embedded in the reflector side of a lamp housing. As shown in Figure 3, the lamps 328 are vertically oriented. In column 5, it states that the lamps are preferably tungsten-halogen lamps although other types of lamps may be used.

In comparison to claim 32, however, Moslehi fails to disclose or suggest a tuning device positioned amongst the lamps 328. Further, nowhere does Moslehi teach, disclose or suggest a tuning device that includes a light energy source spaced from at least one focusing lens that is

configured to focus and direct light energy onto a semiconductor wafer at a particular location.

As such, it is believed that claim 32 patentably defines over Moslehi.

Independent claim 43 defines the tuning device as a laser diode. Nowhere does Moslehi disclose or suggest the use of a laser diode in combination with a plurality of light energy sources. As such, it is believed that independent claim 43 also patentably defines over Moslehi.

Independent claim 51 requires that the plurality of light energy sources be horizontally oriented with respect to a semiconductor wafer while the tuning device is generally vertically oriented with respect to the semiconductor wafer. Again, such a configuration is not disclosed or taught by Moslehi.

The Office Action conceded that Moslehi does not disclose a tuning device that comprises at least one focusing lens as recited in claim 32, a laser diode as recited in claim 43, or a plurality of light energy sources horizontally oriented with respect to a wafer as recited in claim 51 in conjunction with a tuning device. The Office Action, however, states that:

the focusing lens and the laser diode are considered to be obvious variation in design, since the focusing lens and the laser diode are well known in the art and in the optical light system for focusing the light beam produced from the light source, thus would have been obvious to one skilled in the art to use the laser diode and the focusing lens in the Moslehi, et al. apparatus for uniformly localizing, focusing and heating the wafer as Moslehi, et al. disclose the multi-zone illuminator allowing uniform wafer heating during both transient and steady-state wafer heating cycles.

Orienting horizontally the plurality of light energy sources with respect to the wafer is also considered to be obvious variation in design...

In response to the above, Applicants submit that it is not proper to modify a reference based on an assertion that the modification is an "obvious variation in design" using Applicants' own disclosure as a blueprint. In determining obviousness, the inquiry is not whether each

element existed in the prior art, but whether the prior art made obvious the invention as a whole. Further, there must be some teaching or suggestion in the reference that would support its modification. Here, there are elements in Applicants' claims that are completely missing from Moslehi. In an attempt to cure this deficiency, the Office Action states that the missing elements are simply "obvious variations in design" without providing any evidence whatsoever to support the above contention, let alone provide any motivation or incentive for modifying the prior art as alleged.

A rejection based on § 103 must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art. The Patent Office may not resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis. Simplicity and hindsight are not proper criteria for resolving the issue of obviousness. As such, absent further evidence to the contrary, Applicants submit that the claims patentably define over Moslehi.

In the Office Action, the Examiner also requested that the drawings be amended to show a plurality of light energy sources that are horizontally oriented. In response, included with this amendment, is a proposed drawing correction to Figure 1 to more clearly show that the lights are in a horizontal orientation.

In summary, it is believed that the claims as currently amended are patentably distinct over the prior art of record and are in complete condition for allowance. Favorable action, therefore, is respectfully requested. Should any issues remain after consideration of this response, however, then Examiner Nguyen is invited and encouraged to telephone the undersigned at his convenience.

Please charge any additional fees required by this Amendment to Deposit Account No.

04-1403.

Respectfully submitted,

DORITY & MANNING, P.A.

June 10, 2003

Date


Timothy A. Cassidy

Reg. No. 38,024

P.O. Box 1449

Greenville, SC 29602-1449

Telephone (864) 271-1592

Fax (864) 233-7342